

SIXPENCE

DECEMBER, 1941

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# AMATEUR-RADIO

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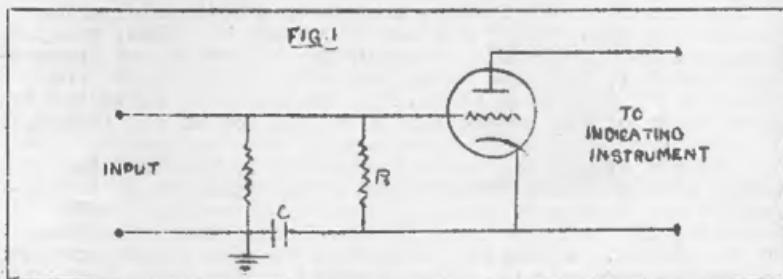
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## A WIDE RANGE TUNING INDICATOR

(From an article in "Wireless World")

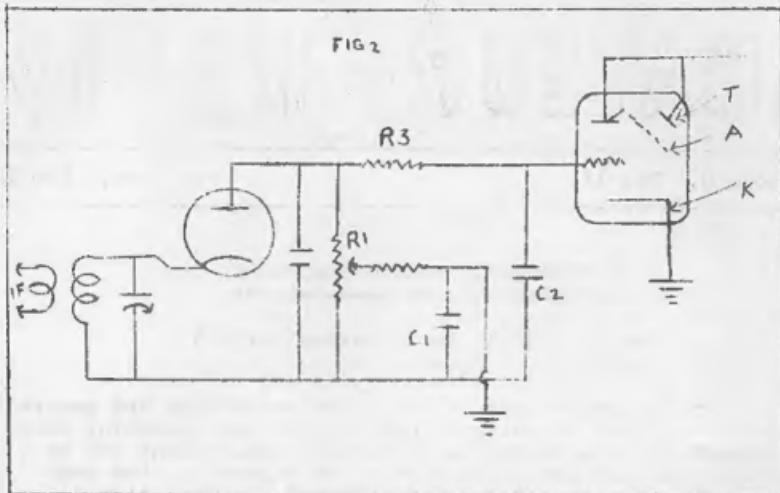
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Tuning indicators of the cathode-ray type are generally more sensitive to voltages well within the operating range than to extreme voltages. A circuit arrangement for an indicator free from this defect and possessing the same high sensitivity for both average and abnormal signals has recently been devised by the RCA laboratories and is shown in a very simple form in Fig. 1.



The voltage to be indicated is impressed upon the grid of the valve shown and also through a suitable time delay net-work upon its cathode. If the impressed voltage swings to an abnormal value, say highly negative, the grid potential may swing outside the straight portion of the characteristic and the valve may become effectively inoperative. However after a time interval determined by the values of resistor R and condenser C, this abnormal potential difference between the grid and the cathode disappears. Thus, the valve comes under effective control again.

Fig. 2 illustrates the application of the principle to a radio receiver.



The time constant of the resistance capacity circuit  $R_2-C_1$  feeding the cathode is appreciably greater than that of the circuit  $R_3-C_2$  feeding the grid, thus providing the necessary delay. The indicator valve may be a 6E5, which has a rod control electrode A between the cathode K and luminescent target T, this rod being supported by the anode and electrically connected to it, the tuning being indicated by contraction of the shadow thrown by the rod on the target.

When a signal of abnormal strength is received the target shadow closes up and becomes unresponsive to adjustment of the tuning condenser; however, after the delay interval, the valve returns to normal operating condition of the shadow. As usually connected the 6E5 is unresponsive to signals more negative than -8 volts on the grid; with the circuit of fig. 2 it can be arranged to respond to swings as great as -220 volts.

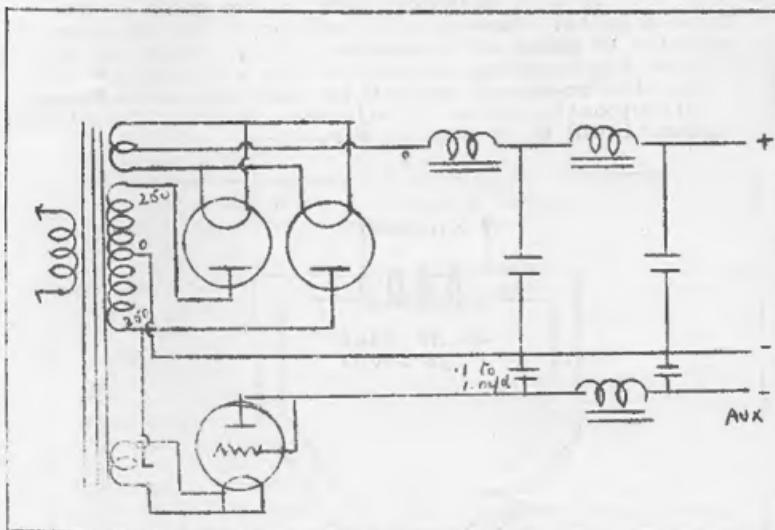
The application of the arrangement described is not confined to the tuning indicator of a radio receiver. The "magic eye" is coming into increasing use as an inexpensive and robust indicator for measuring devices of various kinds, and in many of these a widening of the useful range would be a distinct advantage.

AUXILIARY DC SOURCE

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The need for an auxiliary source of DC potential often arises in experiments with receivers, but the cost of a supply unit of conventional design is not always justified. This article describes how the necessary potential can be inexpensively obtained.

It will be assumed - as indeed should be fairly obvious that only a small current will be drawn from the auxiliary supply circuit to be described. The circuit shows how an ordinary rectifier unit conventional except that in this case choke input smoothing is employed, may be modified to provide an auxiliary supply, negative with respect to earth.



Any spare battery valve will suffice for the auxiliary rectifier. The output voltage can be adjusted from about 150 volts to 350 volts by selection of the capacity  $C$ ; the higher the capacity the higher the resultant voltage. In the interests of valve life it is advisable to use the smallest capacity and hence lowest voltage sufficient for

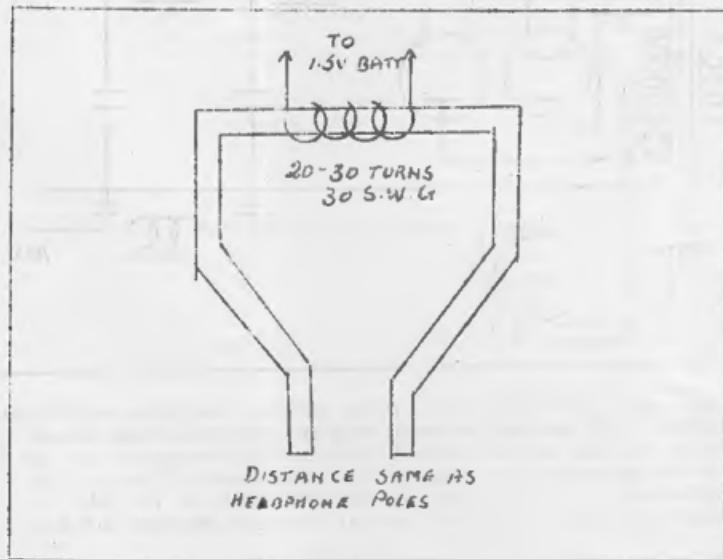
the designers needs. If no spare filament winding is available on the transformer, it is possible in some cases to wind a small secondary of thin wire on top of the existing windings without even dismantling the core.

If the current drain on the auxiliary supply is very small, the smoothing choke L may be replaced by a resistance.

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#### A SIMPLE WAY TO REMAGNETISE HEADPHONES

Construct a small electro-magnet as shown in the accompanying diagram, so that its poles are of the same size and are the same distance apart as the poles of the headphone magnets. Connect a 1.5 v battery and determine the polarity by means of a compass needle. Ascertain the polarity of the headphone magnets in the same way and then place the electro-magnet against the headphone magnets so that their opposite poles are adjacent. After a few minutes the phones should be as good as new.



MEMORIES OF THE PAST.

- LISTENING FOR THE FIRST AMERICAN SIGNALS -

"During the last few days some very fine work has been done by Sydney Wireless Amateurs in connection with long distance reception, signals transmitted from a station in California having been picked clearly.

Some little time ago Mr. F. Basil Cooke, F.R.A.S. of the S. G. Uey Observatory, Mr. Charles MacLurcan of Strathfield, and Mr. J. Roed of Clyde, combined in an effort to organise a test with American Amateurs in an endeavor to span the Pacific. Major Lawrence Mott, of the United States Signals Corps, Avalon, Catalina Island, California, was written to and asked to co-operate. He expressed great pleasure, and offered to do all in his power to make the tests successful. Further negotiations followed and the times of transmission, wavelengths, and signals to be sent were arranged. Mr. MacLurcan's station at Strathfield was remodellled, and no efforts were spared to make his receiver capable of the long distance work.

It was arranged that Major Mott should send a special signal from 6 to 7 p.m. Sydney time commencing April 28th and from 7 to 7.30 p.m. Mr. MacLurcan was to regularly call M O T T using 100 watts power.

These plans were put into operation on the night of 29th April, and although Messrs. MacLurcan, Cooke and Roed listened very carefully, no signals were received. The second portion of the programme was, however, put into effect and for half an hour the letters M O T T were transmitted from Mr. MacLurcan's station. A similar state of affairs prevailed for several nights, and as nothing was heard, it was decided to slightly alter the circuit before attempting to receive on the night of May 4th.

However, on May 3rd, just as the tests had been completed, Mr. J. H. A. Piko of Epping, who has also done some excellent long distance reception, rang Mr. MacLurcan and reported having heard the word M O T T at about 7.10 p.m. Some doubt however existed as to whether the signal from America had been heard or whether Mr. Piko had heard a type of wave known to wireless operators as an harmonic, from Mr. MacLurcan's station.

Mr. Maclurcan's station, and as the reception was indefinite it was decided not to cable a receipt to America. On the other hand it was decided to extend the tests, and Major Mott was cabled and asked to transmit again. He continued his sending and on May 4th was clearly received by Messrs. Maclurcan, Mr. Piko and Mr. Gorman of Kogarah. On May 5th Messrs. Maclurcan and Piko again received the signals and May 6th Mr. Maclurcan's station only was successful. In all Strathfield definitely heard the signals three nights in succession, Mr. Piko two nights and Mr. Gorman once.

The amateurs concerned have thus achieved a notable feat. In the world of commercial wireless, traffic has been carried on uninterruptedly over distances almost twice as far but for purely amateur reception Messrs. Maclurcan, Cooko, Roid, Piko and Gorman have certainly established an Australian record. Further Trans-pacific tests are to take place this month and other amateurs are hoping to have the distinction of receiving from America."

The above is an extract from the "Sydney Morning Herald" of 10th May 1923 and I have been informed that the power used by Major Mott was 1 Kilowatt (even in those days!) and the wavelength 270 metres.

"T. High."

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#### SLOUCH HATS AND FORAGE CAPS

Well, this column is easy - so far. Here is VK2NO with enough to fill it all on his own. Now I want someone else to fill my next column - how about it VK3? (Just when I thought I had someone else to write 'em -- Notes Ed.)

And now, here are 2 NO's experiences just as he sent them in.

"Hams meet in war-time under unexpected conditions, but one place where personal contacts are sure to be made is a wireless school. Lieut. Don. B. Knock, (VK2 NO) Instructor at Army School of Signals, Liverpool, N.S.W., has had a goodly number of VK's among his students through 1941. His first surprise on taking over duties was that the senior Instructor, Major George Every, M.M., turned out to be VK7GE, a QSO of days long past. One day whilst out on exercise, VK2NO and a Corporal student were struggling to get a refractory petrol charger to tick over and the Cpl. turned out to be Bill

Burghard VK2ACL (who is now an A.I.F. Lieut. overseas). Sgt. Joe Ackerman VK2ALG was the next VK2 to show up for three months "penitentiary." Biggest surprise of all was when a young Sgt. turned out to be Geoff Partridge, VK2VU, of 56 mc fam. VK2NO and VK2VU burnt up a lot of watts trying to put 56 mc sigs between Sydney and Singleton before Hitler inter-vened! First thing Don asks of a class of students is "How many Hams are there in this course?" It is seldom that out of a course of 36 that there is not a single ham or at least a second op. from some station. As syndicate leaders are needed for certain wireless experiments during the course it is obvious that any hams gets this job! Bill Felton VK2RF, is now an A.I.C. W.O. recently went through the school other VK2's being Jacobs VK2SJ and Wells 2AME. But A.S.O.S. collects students from all parts of VK. VK3's who have been through the mill there are "Fat" VK3CP now a Sigs Instructor in tanks somewhere, Lieut. Chippindall VK3VU engaged on research work at A.H.Q. in VK3, Sgt. Kirby VK3KI, Lieut. Nye VK3WL and 3EV, old timer Reg. Anthony VK5CM turned up at the school as Sgt. 2NO and 5CM must have QSO'd many hundreds of times from as far back as 1928. From W.A. came Lieut. Elton Groy VK6ZX, now busy with a wireless section in the heart of VK on a special job. 6ZX had a narrow escape from disaster when riding an army mo-bike as Don R at A.S.O.S., riding slap into a wireless van just ahead of him, but obscured in dust. He was only R4 on parado for a week or so afterwards. From VK4 Sgt. Harley, VK4GH entered the school and Tasmania completes all 3 states so far in the shape of Sgt. Morrisby, VK7LM. 2NO wont be seeing many more hams under army school conditions for he goes shortly to an active unit himself with the rank of Captain. "Its better being out in the blue on a real job, instead of the monotony of being a schoolmaster all the time."

Many of the ex-students are now sig. officers and N.C.O's overseas with the A.I.F. and 2 NO wishes them all a safe return to ham radio when the last ACK AR is sent."

Thanks Don, just filled the place nicely, and leaves me all of VK9XX/2XX's at Port Moresby to start next month's news. Merry Christmas to everybody, whether you read this before or after, and think of 2HC, ex W.I.A. Learners Code Tests back at the same old job...8 w.p.m. to trainees at Bradfield.

73 2YC

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#### D I V I S I O N A L   N O T E S

- Now South Wales Division -

By VK2TI

The usual Monthly Meeting of the New South Wales Division

was hold at Y.M.C.A. Buildings on Thursday 20th November and quite a large number of Members were present.

The additional pages in "Amateur Radio" were the subject of favorable comment from all present and it was decided that every endeavor be made to include a further additional page. "Slouch Hats and Forage Caps" was particularly welcomed and the writer of that page received a considerable amount of advice regarding Service Headgear!

The vacancy on the Council caused by Jack Howes VK2ABS resignation upon being called up for the Air Force was filled by Mr. Neil Gough VK2NG. Neil is quite an oldtimer and has regaled members at times with anecdotes dealing with "Fone on 40". Incidentally 2NG has a record to be proud of having only missed two General Meetings since the outbreak of war. This is a fine example of Institute spirit.

Two more Members in "for the duration" are Geoff Pryor VK2AMP and Jim Haining 2AMQ. Geoff, by the way, joined the Institute at the first meeting held after the suspension of Licences and has been a stalwart ever since. Jim joined in October 1939 and until the call up was also in regular attendance. In addition to their calls being in sequence they are both going to that "Paradiso of the North" Darwin, Geoff with Army Signals and Jim with the Engineers. Be careful of the "Dark Clouds" fellas and all the best.

An extract from November issue of Q.S.T. dealing with U.H.F. work in the U.S.A. was read to Members and proved of interest. Now that there is not much DX left for the "Kilowatt Kings" to work more and more attention is being directed to the Ultra-Highs and quite a fair amount of work has been done on 224mc and 112mc. W2MFY using 20 watts to a HY-75 has made contacts over 250,295,335 miles and has heard a station 400 miles away! Pretty good going for 2½.

The proposed Census of Commonwealth Hams recommended by F.H.Q. was approved and the Division is prepared to do its share as far as New South Wales Amateurs are concerned.

A letter from Basil Dale VK2XX and later 9XX was read to Members. Basil has been "touring" the Eastern States and is at present in the Mandated Territory. His remarks concerning the price of beer, cigarettes and tobacco was heard with envy. Basil's letter also contained much information dealing with the activities of hams he has met on Service and if other hams on Service do likewise ZYC should not lack material for "Slouch Hats and Forage Caps."

Another ham to make the grade is our old friend "Tiny" Carter 2MC. After completing his course at Ultimo, is now an instructor at Lindfield.

An interesting talk was given Members by Peter Adams ex VK2JX ex ZL2JX who recently returned from New Zealand. Pete's remarks concerning the ZL's reactions to his descriptive powers were quite humorous. His description of the workings of the N.Z.A.R.T. were particularly interesting also Pete, prior to going to New Zealand occupied the position of Federal Vice President for a time, and whilst in New Zealand became Editor of the Official Organ of the N.Z.A.R.T. "Break In".

The next Meeting of the Division will be held at Y.M.C.A. Buildings on Thursday 13th December and the Lecturer will be W. J. McElrea VK 2UV and he has chosen for his subject "Technical Developments in Ham Radio during the Last Year."

VK2 Division wishes all hams a Merry Christmas.

QUEENSLAND DIVISION.

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4WT..Bill more or less runs the A.R.P. services up here, well more or less, anyway. Earns his honest crust fitting deaf aids to people with defective hearing. Have often wondered how Bill used to hear those teeny weeny signals. Hi.

4ES..Herb is the brains behind the new Police Radio station being established here. A regular attendor at meetings.

4RY..Bill is also tied up with A.R.P. work. I think he is a divisional warden.

4IG.. Finished a decent super some little time ago. works fb.

4RT..Can generally be relied on for a good story can John.

4HU..Once more a resident of VIB after a sojourn in the country. Sells push bikes and wireless sets for a living.

4UU..Bill is in Camp at present - signals. Has put his car up on blocks. You should still have the motor-bike OM.

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VICTORIAN DIVISION

At the monthly meeting of the Division the Army Headquarters Signals provided a very entertaining evening. Members of the A.H.Q. Sigs in charge of -- We're not exactly sure whether it was Sgt. Will iams 3WE or Sgt. Scott 3SS together with other Hams and potential Hams brought along sundry army gear--about a ton of it--or maybe it was two tons--'cause it took some time to transport it up to the Institute rooms; not only that the lift stopped half way up--and the Army is wondering why? If the Army really wants to know--methinks they had better ask the air force---of course they SHOULD know all about what goes up.

With all the gear distributed all around the Room Sgnts, Williams, and Scott and Corporal Ritter explained the gear and then left it in the hands of the gang--several were injured in the rush to handle it. The Institute extends its thanks to the A.H.Q. Sigs for providing such an interesting night.

The next meeting will be held as usual on the first Tuesday of the month--January 6th.

3DX..Les Kermond one of the 200 metre gang is now a member of the technical staff of 3SH.

3XR..Jack Winton is with the Australian Field Regiment abroad.

3YO..Claude Woodward is believed to be a lieutenant with the 2nd Australian Heavy AA, sigs section.

3BH..another of the old 200 metre gang has been transferred to Euron.

3YK..is still in Malaya. Thanks for the Xmas card Gavin.

3NY..complains that he isn't getting enough work these days.

3BQ..turned up at the meeting T'other night. After viewing one of Max's new Xtal units we're wondering what they're going to cost when we get back on the air.

3RN..had a day or two in bed recently, with sundry doctors calling on him. He hopes the trouble won't be repeated.

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